

# Wind Energy Systems – Large & Utility

Zoning Ordinance Amendments

Board of Supervisors Work Session

June 14, 2011



# Work Session Presentation

- Existing Regulations
- Amendment Process
- Proposed Zoning Ordinance Amendments
  - Article II (Definitions and Use Types)
  - Article III (District Regulations)
  - Article IV (Use and Design Standards)
- Next Steps

# Existing Regulations

***Utility services, major:*** Services of a regional nature which normally entail the construction of new buildings or structures such as generating plants and sources, electrical switching facilities and stations or substations, community waste water treatment plants, and similar facilities. Included in this definition are also electric, gas, and other utility transmission lines of a regional nature which are not otherwise reviewed and approved by the Virginia State Corporation Commission.

# Existing Regulations – cont.

TYPE OF SYSTEM	AG-3	AG-1	AR	AV	R-1	R-2	R-3	R-4	PRD	NC	C-1	C-2	PCD	I-1	I-2	PTD	EP
Utility Services, Major	S*	S*	S*	S*	S*	S*	S*	S*	R*		S*	S*	R*	R*	R*	R*	

R – Use by Right

S – Special Use Permit

\* - Use and Design Standards

# Existing Regulations – cont.

## **Sec. 30-83-11. Utility Services, Major.**

### (A) General standards:

1. In considering an application for a special use permit, the planning commission and board of supervisors shall consider the justification for the location of the proposed utility service and any alternative locations which may be available.
2. The minimum lot size may be reduced as part of approval of the special use permit provided all setback requirements are met and all other dimensional requirements are achieved.
3. The height limitation contained in each district may be increased as part of the approval of the special use permit, subject to any other height limitation contained in section 30-72 and 30-73 of this ordinance.
4. No major utility service shall be located within one hundred (100) feet of an existing residence.

# Existing Regulations – cont.

5. Except in the I-1 and I-2 districts, outdoor storage of materials and equipment, except during construction of the utility facility, shall be prohibited in association with a major utility service, unless specifically requested and approved as part of the special use permit. In the I-1 and I-2 districts outdoor storage areas shall comply with the screening provisions contained in section 30-92-4 (E).
6. Buildings and facilities shall be designed and constructed to be compatible with the surrounding area, so that these facilities or structures will not adversely affect nearby properties.
7. Except in the I-1 and I-2 districts, Type E screening and buffering consistent with section 30-92 of this ordinance shall be required, unless specifically modified as a part of the approved special use permit.

# Existing Regulations – cont.

8. All sewer and water utility services shall be publicly owned and operated by a government agency unless otherwise recommended by the director of the utility department and approved by the board of supervisors.
9. Sewer and water utility services shall be designed with a service area and capacity consistent with the purposes of the respective zoning district and the recommendations of the community plan.

# Amendment Process

- **June 16, 2009** – PC motion to initiate amendments
- PC held **10** work sessions from **Oct. 2009 to Jan. 2011**
- Small wind energy systems separated from Large and Utility wind energy systems – **Jan. 2011**
- PC Public Hearing – **March 1, 2011**
  - Approximately 60 speakers
  - Postponed Action on Ordinance



# Amendment Process – cont.

- Additional Work Sessions to Review Public Comments
  - **March 15<sup>th</sup>, April 19<sup>th</sup>, and May 17<sup>th</sup>**
- PC visited Utility Wind Energy System in Greenbrier County, WV (Beech Ridge) – **April 11<sup>th</sup>**
- PC recommended approval (5-0) of draft Zoning Ordinance Amendments at its **May 17<sup>th</sup>** meeting

# Amendment Process – cont.

- Ordinances
  - Virginia Localities
  - Other States / Localities
- Publications / Documents
  - Reports
  - Articles
  - Brochures
  - Fact Sheets
  - Photographs / Maps
  - Presentations / DVDs
- Emails / Letters
- Conversations
- Web Sites
- Conferences (staff)
- Site Visits / Observations
- Planning Commission Meetings
  - Public Comment Period
  - Public Hearing Testimony

# Dealing with Wind Energy Systems in the Zoning Ordinance



- Article II – Definitions and Use Types
- Article III – District Regulations
- Article IV - Use and Design Standards

# Art. II - Definitions and Use Types

- **Wind Energy System, Large**: A wind energy conversion system consisting of one or more wind turbines, towers, and associated control or conversion electronics, having a rated nameplate capacity of not more than 999 kilowatts (kW).

For purposes of non-residential net metering, Virginia Code §56-594B limits the electrical generating facility to a capacity of not more than 500 kilowatts (kW).



# Art. II - Definitions and Use Types

- **Wind Energy System, Utility:** A wind energy conversion system consisting of more than one wind turbine, towers and associated control or conversion electronics, having a rated nameplate capacity of one (1) megawatt (MW) or greater.



Mount Storm, West Virginia

Photo Courtesy of Tara Pattisall

# Art. III – District Regulations

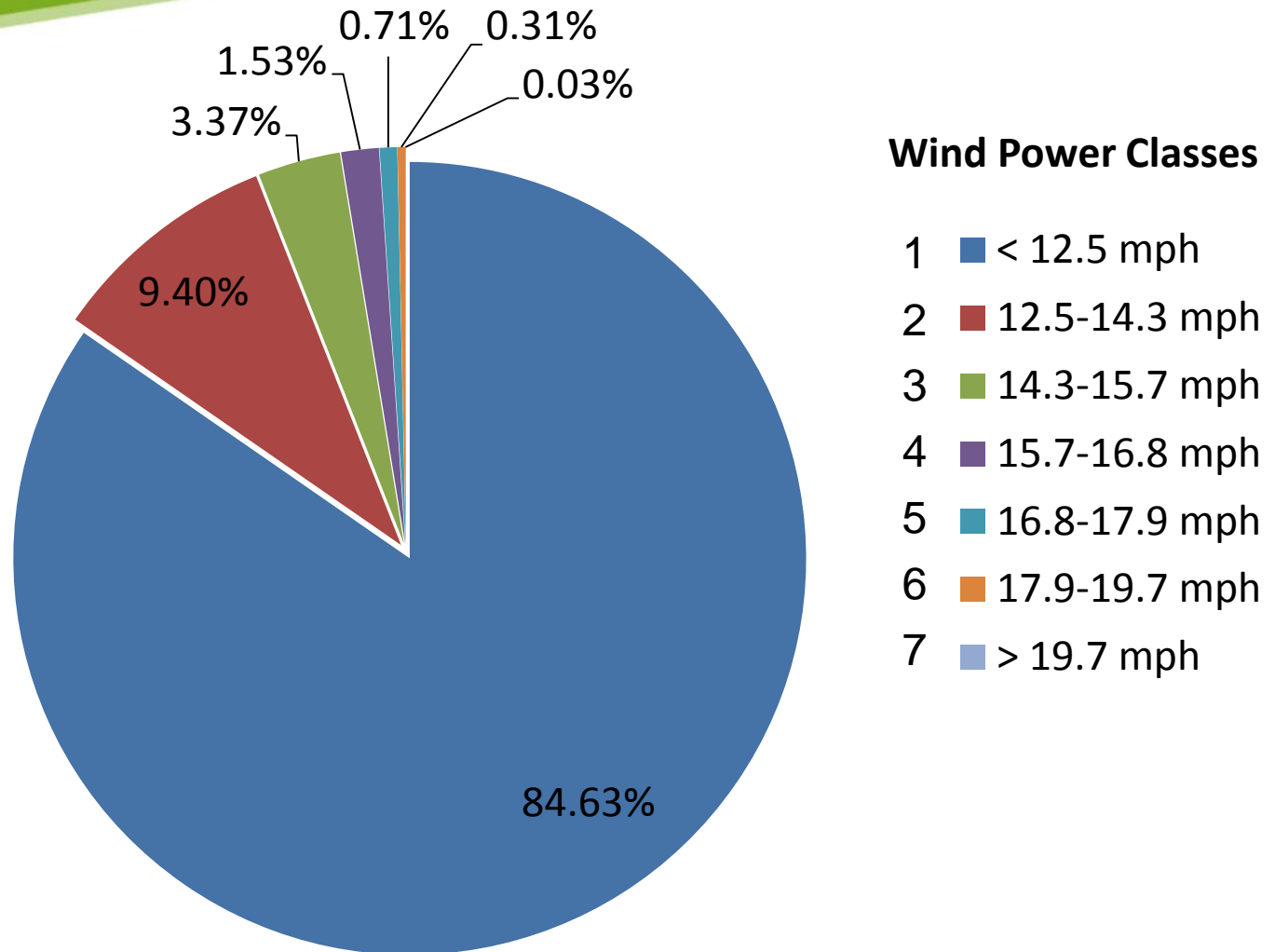
## *Scale of Wind Energy Systems*

Wind Class	Potential For Wind Development
<b>Class 1 or 2</b>	<ul style="list-style-type: none"><li>▪ Marginal for onsite</li><li>▪ Unsuitable to marginal for community-scale</li><li>▪ Unsuitable for utility-scale</li></ul>
<b>Class 3</b>	<ul style="list-style-type: none"><li>▪ Appropriate for onsite</li><li>▪ Marginal to appropriate for community-scale</li><li>▪ Unsuitable for utility-scale</li></ul>
<b>Class 4</b>	<ul style="list-style-type: none"><li>▪ Appropriate for onsite or community-scale</li><li>▪ Marginal for utility-scale</li></ul>
<b>Class 5+</b>	<ul style="list-style-type: none"><li>▪ Appropriate for all scales</li></ul>

Source: Virginia renewables Siting Scoring Systems (VrS<sup>3</sup>)

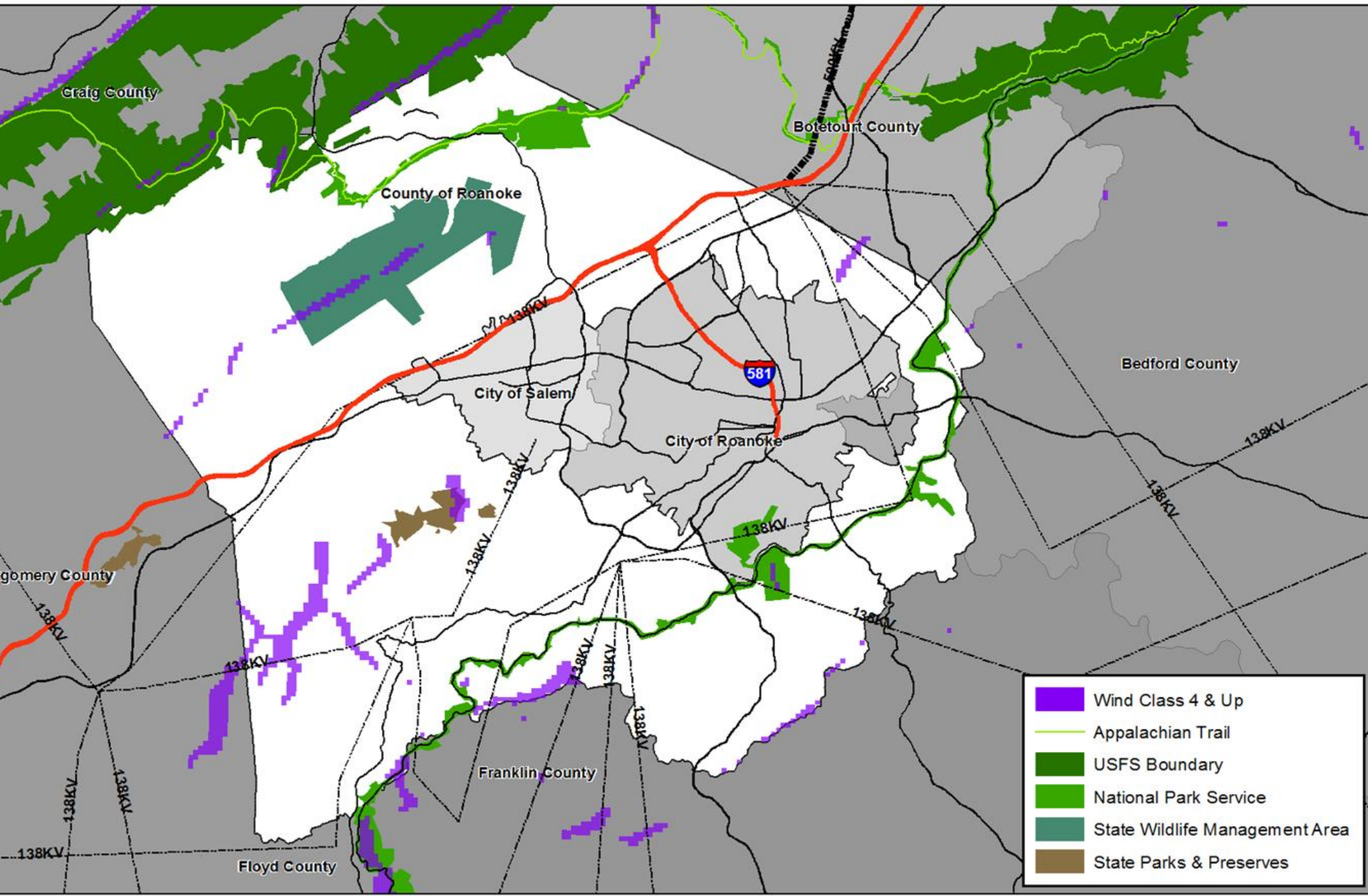
# Art. III – District Regulations

## *Wind Distribution in Roanoke County*





# Utility Scale Energy Systems (Class 4±)





# Art. III – District Regulations

TYPE OF SYSTEM	AG-3	AG-1	AR	AV	R-1	R-2	R-3	R-4	PRD	NC	C-1	C-2	PCD	I-1	I-2	PTD	EP
Large Wind Energy System	S*	S*												S*	S*		
Utility Wind Energy System	S*	S*												S*	S*		
Utility Service, Major	S*	S*	S*	S*	S*	S*	S*	S*	R*		S*	S*	R*	R*	R*	R*	

R – Use by Right

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\* - Use and Design Standards

# Art. IV – Use and Design Standards

- Type of Tower
- Tower Color
- **Setbacks**
- System Height and Separation
- **Noise**
- Shadowing/Flicker
- Lighting
- Communication Interference
- Airports
- Zoning Overlay Districts
- Advertising
- Speed Controls
- Land Clearing, Soil Erosion and Habitat Impacts
- Monitoring and Maintenance
- Removal of Defective or Abandoned Systems
- Compliance with Other Regulations
- **Application Requirements**

# Art. IV - Use and Design Standards

- **Setbacks**

- 110% of the height of the wind energy system from all adjoining non-participating property lines
- 2,640 feet from an existing dwelling units on non-participating properties
- Board of Supervisors may modify the required setbacks based on site specific considerations during the SUP process
- Setbacks measured from the base of the tower

# Art. IV - Use and Design Standards

- **Noise**

- Shall not exceed 60 decibels (dB(A)) measured from the closest non-participating property lines
- Board of Supervisors may modify the decibel level during the SUP process based on site specific considerations
- Compliance with noise standard shall be provided by an acoustical engineer with a professional engineering license in Virginia

# Art. IV - Use and Design Standards

- **Application Requirements**
  - Pre-submission Meeting – 30 days prior to submitting an application
  - **Information to be provided**
  - Applicant responsible for fees associated with independent analysis of information
  - Public Meeting(s)

# Art. IV - Use and Design Standards

## *Information to be Provided*

- Detailed Concept Plan
- Description and Analysis of Existing Conditions
- Photographic Simulations
- Sound Study
  - Pre-construction condition
  - Post-construction condition
  - Noise Complaint Procedures
  - Protocol for Post-construction Monitoring
- Construction Phasing Schedule
- FAA Information
  - Form 7460-1 and Attachments
  - Written Determination regarding Hazard to Air Navigation
- Summary of Wind Data
  - Collection Dates
  - Access for County staff/consultants
- Notification of state/federal units within 5 miles
- Information (modeling) on shadowing / shadow flicker impacts
- Additional information as deemed necessary

# Next Steps

- Work Session – June 14<sup>th</sup>
- First Reading – June 28<sup>th</sup> or July 12<sup>th</sup>
- Second Reading / Public Hearing – July 26<sup>th</sup>

# Questions, Comments, Concerns?

